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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,921	12/16/2003	Di Wei	60246-220; 10,691	5823

26096 7590 02/07/2006

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EXAMINER	
MAYEKAR, KISHOR	
ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/736,921	WEI ET AL.	
	Examiner	Art Unit	
	Kishor Mayekar	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *November 28, 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 30 and 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specifications fails to describe the variable x in Mn_xO_2 .

3. Claims 30 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 30, the variable x in Mn_xO_2 is not defined.

In claim 33, the same is applied to claim 3.

Claim Rejections - 35 USC § 103

4. Claims 1-29 stand and new claims 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld et al. (US 2003/0021720 A1) in view of Kobayashi (US 6,368,668 B1), for reasons as of record.

As to the subject matter of claims 29, 31, 32 and 34, Reisfeld discloses it in paragraph [0020].

5. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld '720 in view of Kobayashi '668 and in light of Applicant's admission. The references as applied above do not disclose that the forming of reactive hydroxyl radical and that air contains carbon monoxide. However, Applicant admits in paragraphs [2] and [3] that indoor air comprises carbon monoxide and hydroxyl radical is formed when titanium dioxide is illuminated with UV light. Since Reisfeld as modified by Kobayashi disclose the use a gold/metal oxide coating, the recited steps of lowering and oxidizing carbon monoxide are inherently in the references'

teachings. As to the recited steps of forming and oxidizing contaminants are also inherently in the references' teachings.

Response to Arguments

6. Applicant's arguments filed November 28, 2005 have been fully considered but they are not persuasive.

In response to Applicant's argument that the specification is enabling to the variable x as the variable is the number of atoms of manganese in the compound, and one skilled in the art would understand this, this found unpersuasive. It is because it is clear in the case when x is 1 to form MnO_2, however the specification describes x as a variable, that is x can be more than one number, whether the number is an integer or a fraction. As such the specification is not enabling to the variable x. If it is still not clear to Applicant, take the case when one skilled in the art would like to include carbon monoxide or carbon dioxide in a material one would denote the material containing at least one of CO_x where x is equal to 1 or 2. On the other hand if one would like to include only carbon monoxide in a material, one would clearly state the material containing CO.

To the argument that the claimed invention is not obvious since there is no suggestion in Kobayashi to employ any specific layers in any specific order, the claimed layers in the claimed order provide benefits that would not be obtained by generally and randomly applying layers on a substrate as disclosed in Kobayashi, and Kobayashi does not disclose a thermocatalytic coating as claimed, the examiner finds this is also unpersuasive. First, the specification discloses that contaminants that are not reacted with the first layer diffuse through the first layer and adsorb on the second layer under the first layer and that contaminants that are not reacted with the second layer diffuse through the second layer and adsorb on the third layer under the second layer, and so on. As such, the specification discloses each of the applying layers is used to adsorb each of specific contaminants and each of the specific contaminants is able to diffuse through each of the layers. And the specification does not disclose the benefits of arranging each of the layers in the specific order such as why each of the specific contaminants needs to be adsorbed first in the arranged first layer and the effect of each of the specific contaminants if it is not adsorb first on the first applying layer to other arranged layers under the first arranged layers as compared to generally and randomly applying layers such as by Kobayashi. As such, each of the

specific contaminants can be adsorbed through each of the generally and randomly applying layers and the claimed invention is obvious over the prior art's teachings. Further, "rearrangement of parts was held to have been obvious". In re Japikse 124 USPQ 70.

Second, to the thermocatalytic coating, since Kobayashi shows that the photocatalyst composition may further comprise a metal such as gold as one of the preferred metal to form a layer (col. 5, lines 53-67) and the metal is supported on the surface of the photocatalytic metal oxide (col. 6, lines 12-14), Kobayashi's layer is equivalent to the thermocatalytic layer disclosed in the specification in paragraph [36] and inherently possesses the recited property.

To the argument that there is no suggestion in any of the references the use of three substrates with different coatings as claimed in claims 24-27, since Reisfeld discloses in Fig. 1 three filter elements each including a [photo]catalytic coating thereon and in paragraph [0024] that any suitable [photo]catalytic coating may be disposed thereon and since Kobayashi shows that photocatalytic coating with metal and/or metal oxide thereon enhances the function efficiency of the coating to contaminants, one skilled in the art would provide each of Reisfeld's substrates with a different coating to increase the photocatalytic oxidation.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

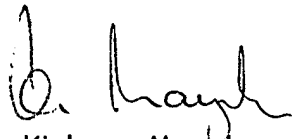
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Primary Examiner
Art Unit 1753